KARDO-SYSOYEVA, Ye.K.; UTENKOVA-RANTSAN, V.A.

On the yield of alcohol in yeast fermentation. Part II: Significance of yeast strain and conditions of cultivation for alcoholic fermentation. Mikrobiologiia 32 no.6:682-688 N-D '53. (MLRA 6:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut gidroliznoy i sul'fitno-spirtovoy promyshlennosti, Leningrad.

(Yeast) (Fermentation)

KARDO-SYSOYEVA, YE. K

USSR/Biology FD 297

Card 1/2

Author : Kardo-Sysoyeva, Ye. K. and Utenkova-Rantsan, V. A.

Title : Concerning the output of alcohol during yeast fermentation. IV. Conditions which inhibit side reactions

Periodical : Mikrobiologiya, 23, 304-312, May/Jun 1954

Abstract : The alkaline fermentation reaction, which leads to the formation of acetic acid, glycerin, and excess CO_2, is considered a side reaction in alcohol fermentation. The inhibition of this side reaction makes possible an increase in the alcohol output. This reaction is easily suppressed in Tomsk Strain No. 7 yeast by slowing down the fermentation process, which raises the alcohol output from 79% to 94% of the theoretical yield. In hydrolyzed factory yeasts this reaction is more intensive and less plastic; besides the highly active dehydrogenase which assures the accumulation of alcohol during the central oxy-reduction stage, these yeasts possess a still more active aldehydemutase which promotes the alkaline fermentation side reaction. Using factory yeasts it is possible to elicit a high alcohol accumulation (up to 91-92% of the theoretical yield) even in a medium with a small concentration of sugar by introducing an excess of acetate ions. This causes the inhibition of the side reaction by establishing an ion equilibrium according to the law of mass action. Six charts. Five Soviet references.

FD 297

Mikrobiologiya, 23, 304-312, May/Jun 1954

Card 2/2

Institution : The All-Union Scientific Research Institute of the Hydrolysis and Sulfite Alcohol Industry, Leningrad

Submitted : July 26, 1954

KARDO-SYSOYEVA, Ye.K.; PAKHOMOVA, M.V.

Nature of frost resistance in plants. Fiziol. rast. 7 no.4:423-427 '60. (MIRA 13:9)

1. Yamal Experimental Station of the Far North Scientific-Research Agricultural Institute.
(Plants—Frost resistance)

KARDO-SYSOYEVA, Ye.K.; KOPTEVA, Ye.G.

Growth and photosynthesis of potatoes in the Far North. Fiziol. rast. 8 no.6:715-725 '61. (MIRA 16:7)

1. Yamal Experimental Station of the Scientific-Research Institute of Agriculture of the Far North, Salekhard.
(Russia, Northern—Potatoes)
(Photosynthesis)

KARDO-SYSOYEVA, Ye.K.; KOPTEVA, Ye.G.

Importance of light and temperature factors for the accumulation of starch in potato tubers in the Far North. Fiziol. rast. 10 no.1: 31-39 Ja-F '63. (MIRA 16:5)

1. Yamal Experimental Station of the Far North Scientific Research Agricultural Institute, Salekhard.
(Yamal-Nenets National Area--Potatoes) (Starch)

DORCHOMAN, D.; KARDON, B.; KISH. D.; SAMOSVAT, G.S.

Search of the interference of resonance trapping of neutrons with potential capture at the 4.9 ev. resonance level for gold nuclei. Zhur. eksp. i teor. fiz. 46 no.5:1578-1585 My '64. (MIRA 17:6)

1. Ob"yedinennyy institut yadernykh issledovaniy.

DORCHOMAN, D.; KARDON, B.; KISH, D.; SAMOSVAT, G.S.;

[Search for the interference of the resonance neutron capture with the potential one in the resonance of gold at 4.9 ev.] Poiski interferentsii rezonansnogo zakhvata neitronov s potentsial'nym v rezonanse zolota 4,9 ev. Dubna, Ob"edinennyi in-t iadernykh issl., 1963. 11 p. (MIRA 17:7)

ACCESSION NR: AP4037567 S/0056/64/046/005/1578/1585

AUTHORS: Dorchoman, D.; Kardon, B.; Kish, D.; Samosvat, G. S.

TITLE: Search for interference of resonance capture of neutrons with potential capture at the 4.9 eV resonance in gold nuclei

SOURCE: Zh. eksper. i teor. fiz., v. 46, no. 5, 1964, 1578-1585

TOPIC TAGS: neutron resonance capture, potential capture, interference, apparatus error, capture cross section, n-Gamma reaction, potential capture cross section, resonance capture cross section, Gamma spectrum

ABSTRACT: This is a continuation of earlier work (preprint OIYaI No. 956, Dubna, 1962), with a greater effort made to eliminate the apparatus effect which was then erroneously mistaken for interference. To detect the interference, the capture cross sections measured by recording different portions of the hard part of the γ

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ACCESSION NR: AP4037567

spectrum from the reaction Au^{197} (n, γ) Au^{198} were compared with the cross section measured by recording the central part of the same spectrum. No interference was observed within the limits of experimental error. The potential capture cross section was estimated to be $\sigma_p < 0.5$ mb assuming that the direct capture mechanism is operating during the emission of all the γ lines with energies in the 5.5--6.5 MeV range. The data are compared with similar results by Wasson and Draper (Physics Letters, v. 6, 350, 1963), whose estimate of the cross section is claimed to be too high. "In conclusion the authors thank F. L. Shapiro for continuous interest in the work and for useful discussions, Ya. Urbanets who participated in one of the stages of the work, G. P. Zhukov and B. Ye. Zhuravlev for operating the electronic equipment, and A. A. Loshkarev for continuous help." Orig. art. has: 3 figures, 5 formulas, and 1 table.

ASSOCIATION: Ob"yedinenny*y institut yaderny*kh issledovaniy (Joint

Card 2/3

ACCESSION NR: AP4037567

Institute of Nuclear Research)

SUBMITTED: 21Nov63 DATE ACQ: 09Jun64 ENCL: 00

SUB CODE: PH NR REF SOV: 008 OTHER: 007

Card: 3/3

NOVIKOV, V.; MATVEYEV, Yu.M.; RUZHINSKIY, M.B.; BATIST, A.I.; IOSSEL', G.; KOROLEV, M.; IVANTSOV, V.; ARONOV, I.; SVETLAKOV, V.; ZAYCHCHIK, L.Z.; RASPOPOV, I.V.; SERDYUKOV, G.V.; GRISHKOV, A.I.; MAKEYEV, I.F.; DELLO, A.A.; SHUMNAYA, V.A., inzh.; SPIRYAGIN, L.F., inzh.; GRISHKOV, A.I.; KARDONOV, B.A.; BURDIN, V.M., kand. tekhn. nauk; MOLGACHEV, D.A., inzh.; MUZALEVSKIY, O.G.; RIVKIN, A.A.; KEYS, N.V.; KOMISSAROV, A.I.

New developments in research. Stal' 25 no.8:842-845 S '65. (MIRA 18:9)

L 36135-66 EWT(m)/EWP(v)/T/EWP(t)/ETI/EWP(k) IJP(c) WB/MJW/JD/HM/HW

ACC NR: AT6016761 (A) SOURCE CODE: UR/2776/65/000/042/0055/0058

AUTHOR: Kardonov, B. A.; Mel'nikov, A. F.; Pravdin, A. V.; Tikhonov, A. S.

ORG: none

TITLE: Deformation resistance of EP375 and EP495 alloys

SOURCE: Moscow. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii. Sbornik trudov, no. 42, 1965. Proizvodstvo bimetallov (Production of bimetals), 55-58

TOPIC TAGS: nickel base alloy, bimetal, metal cladding, chemical plant equipment, metal deformation / EP375 alloy, EP495 alloy, Kh18N9T alloy, 45 steel

ABSTRACT: The EP375 Ni-Cr-Mo alloy (≤0.05% C, ≤1.0% Si, ≤1.0% Mn, 14.5-16.5% Cr, 14.5-16.5% Mo, 3-4.5% W, ≤2.5% Co, ≤7.0% Fe, 0.01% Ce, with Ni as base) and EP495 Ni-Mo alloy (≤0.03% C, ≤0.25% Si, ≤0.5% Mn, 25.0-29.0% Cr, ≤1.5% Fe, 0.01% Ce, 0.05% Ca, 0.05% Mg, with Ni as base), owing to their high strength and corrosion resistance, are highly promising cladding metals for the production of chemical-industry apparatus, since they lead to savings of scarce metals (Ni, Mo, W, Co) and the bimetal sheets thus produced are lighter than solid metal sheets and their rolling requires less pressure and a lower power consumption. Since these alloys are relatively undeformable, the exact mean unit pressures of metal on the rolls must be known in order

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L 36135-66

ACC NR: AT6016761

to determine the optimal rolling regimes. Accordingly, the deformation resistance of these alloys was experimentally determined with the aid of a device ("plastometer," constructed at the South Ural Machine Building Plant) for the plastic deformation of metal at temperatures, rates and degrees of deformation corresponding to real rolling conditions, with oscillographic tracing of the deformation stress, absolute deformation of the specimen, and duration of the deformation process. On this basis it was established that EP375 and EP495 alloys display high deformation resistance over the range of the temperatures of hot deformation. Thus, the deformation resistance of EP495 alloy is twice as high as that of Kh18N9T alloy and four times as high as that of 45 steel. The deformation resistance of EP495 alloy is 5-7% higher than that of EP375 alloy. At temperatures below 1000°C the deformation resistance and tensile strength of these alloys markedly increase, which apparently is due to their structural transformations. Therefore, the temperature at the end of rolling should not be lower than 950-1000°C. The increase in deformation rate to 10 from 0.82 sec^{-1} in sheet mills within the 900-1200°C temperature range causes a 25-30% increase in the deformation resistance of these alloys. Orig. art. has: 3 figures, 1 table, 8 formulas.

SUB CODE: 13, 11, 07/ SUBM DATE: none/ ORIG REF: 002/

Joining of Dissimilar Metals

Card 2/2

Kardonskaya, A.S.

USSR/Chemical Technology - Chemical Products and Their Application - Leather. Fur. Gelatin. Tanning Agents. Technical Proteins. I-29

Abs Jour : Referat Zhur - Khimiya, No 9, 1957, 33125

Author : Markovskiy, V.N., Kardonskaya, A.S.
Inst :
Title : Determination of Salinity of Wash-Water with EM-1 Electrometer.

Orig Pub : Legkaya prom-st', 1956, No 11, 40-42

Abstract : To determine the content of salts in wash-water of chrome-leather manufacture an EM-1 electrometer has been designed The operation principle of which is based on the correlation between conductance of the solution and concentration and dissociation degree of electrolyte. A diagram and a description of the apparatus are included. This apparatus makes it possible to determine the total amount of all the salts, and not merely the content of chlorides. It is

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USSR/Chemical Technology - Chemical Products and Their Application - Leather. Fur. Gelatin. Tanning Agents. Technical Proteins. I-29

Abs Jour : Ref Zhur - Khimiya, No 9, 1957, 33125

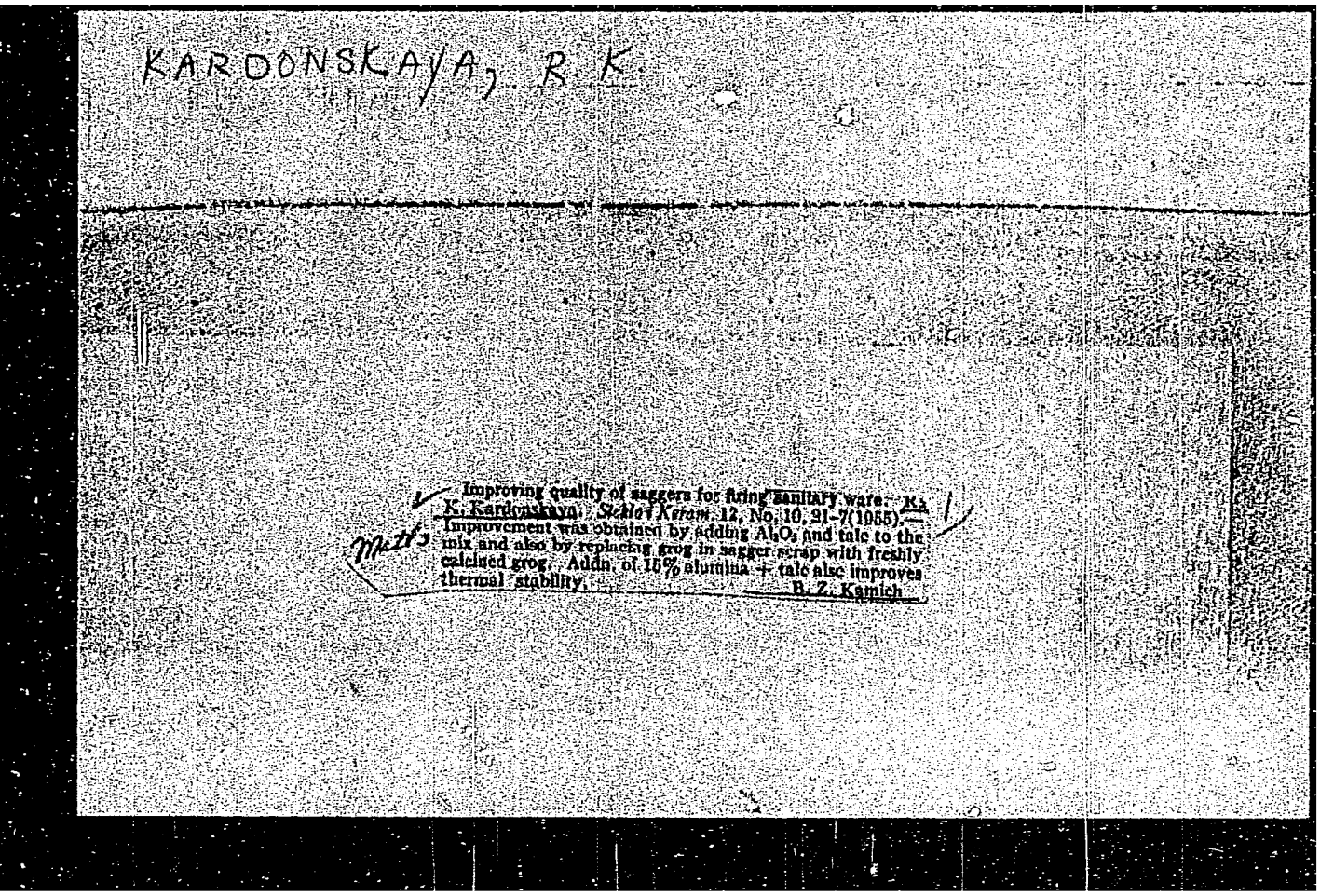
It is reported that work is in progress on the utilization of this apparatus in operation control of other processes of leather manufacture.

Card 2/2

KHORIKOVA, Z.; KARDONSKAYA, R.

Time doesn't wait. Mest.prom.i khud.promys. 3 no.4:6-7 Ap '62. (MIRA 15:5)

1. Nachal'nik upravleniya khimicheskoy promyshlennosti Gosudarstvennogo nauchno-issledovatel'skogo instituta ozernogo i rechnogo rybnogo khozyaystva (for Khorikova).
(Phosphate industry) (Fertilizers and manures)



KARDONSKAYA, R. K.

Improving quality of saggers for firing sanitary ware. R. K. Kardonskaya. *Steklo i Keram.* 12, No. 10, 21–7(1955).—Improvement was obtained by adding Al_2O_3 and talc to the mix and also by replacing grog in sagger scrap with freshly calcined grog. Addn. of 15% alumina + talc also improves thermal stability. B. Z. Kamich

KARDONSKIY, M.I.

Universal four-spindle head. Mashinostroitel' no.4:28 Ap '63.
(MIRA 16:5)
(Drilling and boring machinery--Attachments)

KARDONSKIY, M.I., inzh.

Head for boring holes of base pieces in situ. Stroi. i dor. mash. 8 no.11:33-34 N '63. (MIRA 17:1)

SOV/126-7-5-

AUTHORS: Kardonskiy, V. M., Kurdyumov, G.V. and Perkas, M. D.

TITLE: Influence of the Properties of Crystals on the Strength of Metals in the Hardened Condition (O vliyanii svoystv kristallov na prochnost' metallov v uprochnennom sostoyanii)

PERIODICAL: Fizika metallov i metallovedeniye, Vol 7, Nr 5, pp 752-756 (USSR)

ABSTRACT: Kurdyumov et alii (Ref.2) have shown that there exists a linear relationship between the degree of secondary distortion and the hardness of martensite in quenched low C steels (see Fig.1). Golubkov et alii (Ref.3) have shown that there exists a direct relationship between the degree of secondary distortion and the hardness of alloyed iron after cold plastic deformation (see Fig.2). Using results obtained by the latter authors a diagram has been constructed (Fig.3) showing the dependence of the degree of secondary distortion, arising as a result of cold plastic deformation, on the hardness of the original annealed alloy iron. From the above diagram it can be seen that the absolute hardness of hardened alloys is determined not only by the fine grain structure but also by

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Influence of the Properties of Crystals on the Strength of Metals in the Hardened Condition

the properties of the crystals of the original metals as annealed. These properties also determine the elastic limit of micro-regions, $\Delta a/a$, in the hardened state. For a further study of the above conclusions the authors investigated alloys in which the properties of solid solution crystals strongly depended on the concentration of the dissolved elements. Among the iron alloys the most suitable ones for investigation are iron-silicon alloys with a silicon content up to the limiting solid solubility in α-iron. The chemical composition of the original iron and its alloys with silicon is given in Table 1. The methods used for the study were the same as those employed by Golubkov et alii (Ref.3). In Table 2 the results of hardness, UTS and temporary resistance measurements of annealed alloys are shown. In Fig.3 curves are plotted which express the dependence of hardness on the degree of plastic deformation. The relationship between the strength properties and the fine structure in the hardened state were studied in specimens of alloys which had been deformed at identical loads (85 tons). The degree of deformation was found to vary from 68% for iron free from silicon to 48%

Influence of the Properties of Crystals on the Strength of Metals in the Hardened Condition

for an alloy containing 9.4% Si. In accordance with the results shown in Fig.4 the hardening of all the alloys must be close to "saturation". The results of the study of the specimens are shown in Fig.5. These show that the increase in hardness as a result of cold deformation is not related to the magnitude of secondary distortions arising during deformation as it is practically independent of the Si concentration, whilst $\Delta a/a$ increases by nearly twice.

However, $\Delta a/a$ increases proportionately to the hardness of the annealed material. Thus the results obtained are in agreement with the idea that the secondary distortions are not alone responsible for the hardness arising from the cold deformation and martensite transformation, but reflect the properties of crystals of a given material, characterizing the "limit" of the elastic deformation of micro-regions. These properties determine the level of the strength which can be attained as a result of changes in the internal microscopic and sub-microscopic grain structure in the hardening process.

SOV/126-[illegible]-7-5-19/25

Influence of the Properties of Crystals on the Strength of Metals in the Hardened Condition

There are 5 figures, 2 tables and 7 references, of which 6 are Soviet and 1 English.

ASSOCIATION: Institut metallovedeniya i fiziki metallov TsNIICHM (Institute of Metallurgy and Metal Physics TsNIICHM)

SUBMITTED: January 22, 1959

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24(4)
AUTHORS: Kardonskiy, V. M., Perkas, M. D. SOV/32-25-2-59/78

TITLE: An X-Ray Camera With a Device for Stretching the Sample (Rentgenovskaya kamera s mekhanizmom dlya rastyazheniya obraztsa)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 2, pp 236-237 (USSR)

ABSTRACT: The apparatus described (Fig 1) makes it possible to observe the changes in the crystalline structures of metals during a straining test within the limits of elasticity and plasticity. The apparatus consists, basically, of an X-ray camera to which a device for stretching the sample is attached. The changes occurring during the straining test are observed by means of a microscope and may be seen in the shifting of the calibration lines or on an indicator. The sample itself (Fig 2) has a special shape - spherical heads - which prevents their being distorted during the test. The indicator is calibrated to tension loads of 1 kg, the maximum load being 200 kg. It can be seen from the radiogram (Fig 3) of an alloy (Fe + 4.75% Si) obtained by means of a tube developed by B. Ya. Pines (FeKa) that the reflexes

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are blurred as the tension increases (0, 12, 23 and 27 kg/squ.mm, and σ_B = 40 kg/squ. mm respectively). From this blurring the angular characteristics of the grain disorientation can be calculated so that a relation between the disorientation angle and the strain and distortion of the sample can be found. There are 3 figures.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (Central Scientific Research Institute of Ferrous Metallurgy)

S/070/60/005/003/012/024/XX
E132/E460

AUTHOR: Kardonskiy, V.M.

TITLE: On Errors in the Extinction Coefficients

PERIODICAL: Kristallografiya, 1960, Vol.5, No.3, pp.359-363

TEXT: In X-ray diffraction photographs primary extinction is due to the interaction of incident and reflected beams inside each region of coherent scattering. It depends, therefore, on the sizes of the coherent regions. Secondary extinction is due to the shielding of mosaic material but the layers of the crystal above it which attenuate both incident and reflected beams. It depends on the spread of the mosaic - the number of independently scattering regions simultaneously in the reflecting position. As a real crystal approaches perfection the effect of both sorts of extinction becomes more serious. The critical size of the coherent regions for which it is possible to neglect primary extinction is inversely proportional to the wavelength. The primary extinction coefficient f is proportional to $1/d^2$. When the mosaic block sizes can be estimated from line broadening, the effects of primary and secondary extinction can be evaluated separately. If only integrated intensities are measured this

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S/070/60/005/003/012/024/XX
E132/E460

On Errors in the Extinction Coefficients

cannot be done. A simple method is described here for evaluating them simultaneously for the case of reflexions from a crystal (this has already been done for the transmission case). This has been tested on a powder of electrolytic nickel, deformed by grinding and annealed at various temperatures. There are 1 table and 16 references: 5 Soviet, 3 German and 8 English.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (Central Scientific Research Institute for Ferrous Metallurgy)

SUBMITTED: August 10, 1959

Card 2/2

KARDONSKIY, V. M.

PHASE I BOOK EXPLOITATION SOV/5525

Bagaryatskiy, Yuriy Aleksandrovich, Doctor of Physics and Mathematics; Yakov Mendelevich Golovchiner; Vera Alekseyevna; Emmanuil Zel'manovich Kaminskiy, Candidate of Physics and Mathematics; Viktor Mikhaylovich Kardonskiy; Vladislava Kazimirovna Kritskaya, Candidate of Physics and Mathematics; Leonid Ivanovich Lysak, Doctor of Technical Sciences; Yuriy Andreyevich Osip'yan; Mark Davydovich Perkas, Candidate of Technical Sciences; Vladimir Moiseyevich Rozenberg, Candidate of Technical Sciences; Naum Isaakovich Sandler, Candidate of Technical Sciences; Nadezhda Trofimovna Travina, Candidate of Physics and Mathematics; and Lev Markovich Utevskiy, Candidate of Technical Sciences.

Rentgenografiya v fizicheskom metallovedenii (Radiography in Physical Metallography) Moscow, Metallurgizdat, 1961. 368 p. 5,200 copies printed.

Sponsor' , Agencies: Gosudarstvennyy nauchno-ekonomicheskiy Sovet SSSR. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii im. I.P. Bardina. Institut metallovedeniya i fiziki metallov.

Ed. (Title page): Yu. A. Bagaryatskiy; Ed. of Publishing House: Ye.K. Berlin; Tech. Ed.: Ye.B. Vaynshteyn.

Card 1/7

PURPOSE: This handbook is intended for x-ray technicians working in plant laboratories of the metallurgical and machine-manufacturing industry. It may also be useful to technical personnel in the field of applied x-ray diffraction analysis employed at scientific, technical, and educational institutions.

COVERAGE: The handbook contains basic information of the methods employed in metallography. It consists of four parts. Part I contains descriptions of methods for the study of polycrystals, including the special features of the work with sharp-focused tubes and ionization counters, preparation of specimens, and choice of radiation sources, filters, cameras, and geometry of the picture. Data on the photomotoring of x-ray pictures and on the application of electron diffraction techniques to metal science are also presented. Part II contains a detailed description of stresses and deformations in crystals of metal, as well as of new methods for measuring the size of grains and areas of coherent scattering. The material also contains data on methods for studying the recrystallization of metals for determining textures. Part III is devoted to x-ray phase analysis to be carried out with the aid of tables included in the appendix. Part IV deals with x-ray studies of steel that has been variously treated by thermal and thermochemical methods. No personalities are mentioned. There are 282 references: 199 Soviet, 55 English, 26 German, and 2 French.

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18 8200 1418, 1555

21366
S/126/61/011/004/016/023
E193/E483

AUTHORS: Kardonskiy, V.M., Kurdyumov, V.G., Kurdyumov, G.V. and Perkas, M.D.

TITLE: The Effect of the Grain Substructure and Crystal Properties on Strength. I. The Fe-Ni and Fe-Si Alloys

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol.11, No.4, pp.609-614

TEXT: The object of the investigation described in the present paper was to study the effect of the thermally induced variation of the properties of crystals on strength of metals in the hard condition and on the magnitude of the elastic deformation of micro-domains (distortions of the second type). The experimental work was carried out on two Fe-base alloys, one containing 25% Ni and the other 1.15% Si. (The Ni-bearing alloy was chosen for this purpose because of its specific characteristic, consisting in that annealing of this alloy at 450°C brings about a complete removal of the distortions of the second type without significantly affecting the size of the regions of coherent scattering.) The Fe-Ni alloy was hardened by quenching, the Fe-Si alloy by cold rolling to 50% reduction in thickness. In addition to the determination

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(by X-ray diffraction analysis) of the magnitude of distortions of the second type, $\Delta a/a$, and the size D of the regions of coherent scattering, the yield point (σ_s), U.T.S. (σ_B) and Vickers hardness number (HV) of both hardened and partially annealed alloys were measured, and the temperature-dependence of these properties was determined for both hardened and fully annealed specimens. The results of the first series of experiments, carried out on preliminarily hardened Fe-Ni alloy, are reproduced in Fig.1, where HV, σ_s (kg/mm^2), D (10^{-6}, cm) and $\Delta a/a$ (10^{-3}) are plotted against the annealing temperature (°C); in addition, the diagram shows the temperature-dependence of HV and σ_s (curves, marked HV(t) and σ_s(t), respectively). It will be seen that the temperature dependence of σ_s and HV is quite different from the relationship between these properties (measured at 20°C) and the annealing temperature. Thus, σ_s measured at 450°C is 25 kg/mm^2 lower than σ_s measured at 20°C after annealing at 450°C, the corresponding difference for HV being 90 units. On the other hand, the temperature-dependence of σ_s and HV is almost identical with the relationship between $\Delta a/a$ and the annealing temperature. The fact that σ_s of preliminarily

hardened specimens is practically constant after annealing at various temperatures indicates that σ_s, measured under these conditions, reflects mainly the character of the variation of the grain substructure during heating; in fact, D of specimens, annealed at various temperatures, also remains practically constant (see Fig.1). In the next series of experiments, preliminarily hardened specimens of the Fe-Ni alloy were annealed at 430°C to attain almost complete removal of the distortions of the second type, and then the temperature dependence of σ_s of these specimens was determined. This was found to be identical with that of fully hardened alloy, whereby the view was confirmed that the resistance of an alloy to deformation is not increased by the presence of distortions of the second type. Owing to the comparatively low temperature at which the reverse $\alpha \rightleftharpoons \gamma$ transformation takes place in the Fe-Ni alloy, it was not possible to use this material to study the relationship between $\Delta a/a$ and the temperature dependence of annealed specimens. For this purpose the Fe-Si alloy was more suitable. The results of experiments carried out on this material are reproduced in Fig.4 which shows: temperature dependence of HV of cold-rolled alloy

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(curve HV(t), white triangles); temperature dependence of HV of specimens annealed at 750°C (curve HV(t), white squares); variation of HV of preliminarily hardened specimens after annealing at various temperatures (curve HV, white triangles); variation of D (dots) and $\Delta a/a$ (white triangles) after annealing at various temperatures. The temperature dependence of HV of the annealed specimens reflected the decrease in the resistance of the alloy to deformation due to the variation of the properties of crystals with rising temperature; since the specimens were annealed at 700°C, their grain substructure should remain unchanged during subsequent heating and should not affect the variation of HV. In the case of the cold-rolled specimens, whose HV was measured at room temperature after annealing at various temperatures, the variation of HV reflected only the changes in the micro- and sub-microscopic structure of the grains, brought about by heating to progressively higher temperatures. This means that in the temperature dependence of HV of cold-rolled material, HV at each temperature should be determined by the changes in both the grain substructure and the crystal properties that have taken place as a result of heating to this

temperature. Starting from these considerations, the present authors constructed a "theoretical" curve, illustrating the temperature dependence of HV of cold-worked alloy, simply by adding (for each temperature) the decrease in HV due to the change in the crystal properties (found from the experimentally determined temperature dependence of annealed specimens) to that due to the variation of the grain substructure (found from the experimentally determined variation of HV of cold-worked specimens after annealing at various temperatures). The results plotted in Fig.4 (black triangles) were in good agreement with the experimental curve (white triangles). The results of the present investigation confirmed the view that strength (resistance to deformation) of a hardened material is determined by two factors: (1) the properties of the crystals (resistance to the movement of dislocations in the crystal regions, free from sub-boundaries) and (2) the substructure of the crystals (size of the sub-micro-regions, presence of sub-boundaries, degree of misorientation of the mosaic blocks). There are 5 figures and 9 Soviet references.

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21366

The Effect of the Grain ... S/126/61/011/004/016/023
E193/E483

ASSOCIATION: Institut metallovedeniya i fiziki metallov TsNIIChM (Institute of Science of Metals and Physics of Metals, TsNIIChM)

SUBMITTED: August 26, 1960

Card 6/7

188200 1418,1555

S/126/61/011/004/017/023
E193/E483

AUTHORS: Kardonskiy, V.M., Kurdyumov, G.V. and Perkas, M.D.

TITLE: The Effect of the Grain Substructure and Crystal Properties on Strength. II. Iron and Nickel

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol.11, No.4, pp.615-619

TEXT: The object of the present investigation was to obtain additional experimental evidence on the relative part played in increasing the strength of metals by the variation of the crystal structure and by the changes in other properties of crystals. Nickel and iron were chosen as the experimental materials because of the different temperature dependence of their yield points below 20°C. In the first series of experiments, Vickers hardness HV and the width B of the (220) lines of iron were measured after various thermal and mechanical treatments. After 1 h annealing at 750°C, HV and B (measured at 20°C) were 65 kg/mm^2 and 11 x 10^{-3} radians respectively; on lowering the temperature to -180°C, HV increased to 185, but B remained practically unchanged. The specimen was then deformed plastically (30% compression) at -180°C, after which HV (measured at this

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temperature) was 220 kg/mm^2, and B increased to 31 x 10^{-3} radians. After heating to 20°C, B of this specimen decreased to 22 x 10^{-3} radians and HV to 98 kg/mm^2. When the specimen was cooled again to -180°C, hardness increased back to 220 kg/mm2 but B remained unchanged. These results indicated that an increase in hardness (strength) can be caused either by the variation of the crystal properties alone (the increase in HV after cooling to -180°C was not accompanied by any change of B) or by the change of the grain substructure (the increase in HV due to plastic deformation was accompanied by an increase in B). In this connection, the authors point out that when an annealed Fe specimen was compressed at 20°C to 30% deformation, its HV increased from 63 to 85 kg/mm^2 and B from 11 x 10^{-3} to 19 x 10^{-3} radians; after cooling to -180°C, HV increased to 200 kg/mm^2. The relatively higher increase in HV after plastic deformation at -180°C (see above) was attributed to a higher degree of dispersion of the grain substructure, formed at this temperature. A series of similar experiments was conducted on nickel. It was found that, in contrast to iron, HV of annealed Ni cooled to -180°C increased only by ΔHV = 15 kg/mm^2; plastic

deformation of Ni at -180°C brought about an increase in HV from 65 to 160 kg/mm^2, and increased B from 11.4 x 10^{-3} to 23.9 x 10^{-3} radians; after heating to room temperature, HV decreased to 140 kg/mm^2, B remained practically unchanged; after repeated cooling to -180°C, HV increased to 160 kg/mm^2. Thus, it was shown that in the case of nickel, whose crystal properties change very little on cooling, the distortions of the second type (caused by plastic deformation at -180°C) remain practically unchanged after heating to 20°C. The increase in HV of nickel due to plastic deformation at 20°C was also lower than that attained at -180°C. This is illustrated in Fig.5, where HV of nickel (left-hand scale) and the size of mosaic blocks (D, 10^{-6} cm, right-hand scale) are plotted against the degree of plastic deformation (%) at room temperature (broken curves) and at -180°C (continuous curves). The results obtained illustrated clearly the difference in the effect of a decrease in temperature on strength of iron and nickel. The strength (hardness) of Fe rapidly increases with decreasing temperature, and the increase in strength due to deformation at -180°C is mainly associated with the change in the crystal properties, the change in the crystal

substructure playing a relatively small part. In the case of Ni, the part played by the variation of the crystal properties is small in comparison with that played by the formation of submicroscopically heterogeneous structure. In both cases, however, the effect of these two factors is additive. There are 5 figures and 7 references: 5 Soviet and 2 non-Soviet.

ASSOCIATION: Institut metallovedeniya i fiziki metallov TsNIIChM (Institute of Science of Metals and Physics of Metals, TsNIIChM)

SUBMITTED: August 26, 1960

KARDONSKIY, V.M.

X-ray diffraction photographing of crystals. Kristallografiia 7 no.2:313-315 Mr-Ap '62. (MIRA 15:4)

1. Institut metallovedeniya i fiziki metallov Tsentral'nogo nauchno-issledovatel'skogo instituta chernoy metallurgii imeni Bardina.

(Radiography) (Crystallography)

18 8200 1413

33457
S/126/61/012/006/018/023
E073/E535

AUTHORS: Kardonskiy, V.M. and Perkas, M.D

TITLE: On softening quenched and plastically deformed iron

PERIODICAL: Fizika metallov i metallovedeniye, v.12, no.6, 913-915

TEXT: For understanding the nature of hardening and softening it is important to study the features of the crystal structure of a material hardened by various methods, since the crystal structure of materials hardened by differing methods to the same resistance to plastic deformation may differ in some respects. In this paper the results are described of investigations on the binary alloys Fe + 2.2% Mn, Fe + 4% Ni and unalloyed iron. The hardening was effected by two methods: plastic deformation and quenching. Prior to quenching, the specimens were heated in a salt bath. The specimens of the unalloyed iron were quenched from 1150-1200°C in an aqueous solution of NaOH at 5°C, whilst the binary alloys Fe-Mn and Fe-Ni were water quenched from 1000°C. After quenching, the specimens of the unalloyed iron had a hardness of 180 HV, whilst the specimens of the Fe-Mn and Fe-Ni alloys had hardness values of 220 and 250 HV.

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respectively. The second series of specimens was work-hardened by rolling. Thereby, the degree of work-hardening was so chosen that the final hardness for each material was the same as for the respective quenched specimens. This was achieved by a total reduction of 50 to 60%. It was assumed that these two methods of hardening brought about changes in the crystal structure of each of the alloys, which led to an almost equal resistance to plastic deformation. After hardening and after various stages of softening, the hardness and the blurring of X-ray interference lines were determined. By means of metallographic and X-ray investigations the initial recrystallization temperature was determined. A difference was observed in the nature of the interference lines of the specimens which were hardened by quenching from those that were hardened by plastic deformation. The X-ray exposures of specimens that had been quenched showed characteristic reflections which were slightly extended along the arc of the Debye ring. In the case of the specimens hardened by plastic deformation a wide continuous line was observed or a line consisting of a band stretched along the entire arc of the

S/717/62/000/007/001/010
D207/D301

AUTHORS: Kardonskiy, V.M., Kurdyumov, G.V., Member of the Academy of Sciences, USSR, and Perkas, M.D., Candidate of Technical Sciences

TITLE: Relationship between changes of the fine structure and the resistance to plastic deformation of metals and alloys after hardening

SOURCE: Dnepropetrovsk. Institut metallovedeniya i fiziki metallov. Problemy metallovedeniya i fiziki metallov, no. 7, Moscow, 1962, 7 - 33

TEXT: A review is given of the recent work on iron and its solid solutions carried out at the Institut metallovedeniya i fiziki metallov TsNIIChM (Institute of Metallography and Physics of Metals TsNIIChM). The fine structure is defined as microscopic and submicroscopic structural inhomogeneities in crystal grains. Such structure was investigated and related to changes in mechanical properties. The authors discuss work on cold plastic deformation, the effect of alloying, the

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Relationship between changes of the ... S/717/62/000/007/001/010
D207/D301

role of elastic microstresses ('stresses of the second kind'), the relationship between annealing and elastic microstresses and the effects of heating. It was found that the principal cause of the increase of the resistance to plastic deformation, produced by cold working and other treatments, is due to the appearance of submicroscopic structure in individual crystal grains. The grains were found to consist of fragments (10-3 - 10-4 cm in size, differing strongly in orientation) which were in turn composed of mosaic blocks, i.e. regions which scatter X-rays coherently. The block sizes were 10-5 - 10-6 cm and their orientations differed only very slightly. Maximum hardness was obtained when the block dimensions were smallest. The temperature interval where these dimensions increased corresponded to softening of iron and its alloys. Breakup of fragments and blocks was accompanied by increase of their misorientation. There are 19 figures and 37 references: 21 Soviet-bloc and 16 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: W.G. Johnston and G.G. Gilman, J.Appl.Phys., 30, 2, 129, 1959; D.F. Stein and G.R. Low, J.Appl.Phys., 31, 2, 362, 1960; P.B. Hirsch, J.Inst. Metals, 8, 406, 1959; W. Bollman, J.Inst.Metals, 8, 439, 1959.

Card 2/2

KARDONSKIY, V.M.; KURDYUMOV, G.V., akademik; PERKAS, M.D., kand.tekhn.nauk

Connection between changes in the fine crystal structure and the resistance to plastic deformation in metals and alloys after hardening. Probl.metalloved.i fiz.met. no.7:7-33 '62. (MIRA 15:5)

(Metallography) (Deformations (Mechanics))

S/137/62/000/012/023/085
A006/A101

AUTHORS: Kardonskiy, V. M., Kurdyumov, G. V., Perkas, M. D.

TITLE: The relation between changes in the fine structure and plastic deformation resistance of metals and alloys after strengthening

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 12, 1962, 43, abstract 12I258 ("Sb. tr. In-t metalloved. i fiz. metallov Tsentr. n.-i. in-ta chernoy metallurgii", 1962, v. 7, 7 - 33)

TEXT: The following two means of increasing the strength are indicated: 1) the formation of a fine micro- or submicro-heterogeneous grain structure with the aid of thermal or mechanical treatment, i.e. the production of a maximum amount of lattice defects; 2) the production of crystals without defects. The first method of increasing the strength is analyzed. A description is given of known methods for treating metals and alloys which make it possible to obtain a submicro-heterogeneous structure (thermal and mechanical treatment, their combination, neutron effect, electron effect etc.). The plastic deformation resistance can also be risen by alloying. However, none of the indicated methods

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The relation between changes in the...

S/137/62/000/012/023/085
A006/A101

yields a strength exceeding one quarter of the theoretical value. Two directions should be distinguished when investigating the problem of strength: the revealing of the relation between the purely structural changes in the crystal structure and the increase in strength, and studying the factors which predetermine the different strength level of metals and alloys after strengthening. The authors describe the basic results of experimental investigations, carried out at the Institute of Metal Science and Metal Physics at TsNIIChM. Information is given on the part of individual elements of fine structure in the strengthening of metals. The investigations were conducted with Fe and its alloys. The basic crystallostructural factor, predetermining the strengthening effect, is the submicro-heterogeneity; the crystal grains consist then of fragments of 10^{-3} - 10^{-4} cm size with considerable disorientation; the latter consist of domains of 10^{-5} - 10^{-6} cm size. During the deformation process, the maximum intensity of strengthening coincides with the sharpest reduction in size of the coherent scattering zones. The temperature range where the zones of coherent scattering grow, coincides with the softening range. The crushing of fragments and refining of coherent zones during the deformation process are inseparably connected with an increasing degree of their disorientation. After

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The relation between changes in the... 3/137/62/000/012/023/085
A006/A101

considerable deformations the angle of maximum disorientation attains 10° - 15°; the angle between adjacent fragments is 40' - 50' and between the domains 1' - 2'. There are 37 references.

[Abstracter's note: Complete translation]

V. Geminov

Card 3/3

ZAGARIY, L.B.; KARDONSKIY, V.M.

Transmitted beam in the case of anomalous X-ray absorption. Kristallografiia 8 no.2:263-264 Mr-Ap '63. (MIRA 17:8)

1. Institut metallovedeniya i fiziki metallov TSentral'nogo nauchno-issledovatel'skogo instituta chernoy metallurgii imeni Bardina.

S/126/63/015/002/014/033
E193/E383

AUTHORS: Kardonskiy, V.M., Kurdyumov, G.V. and Perkas, M.D.

TITLE: The fine structure of cold-worked high-carbon steel

PERIODICAL: Fizika metallov i metallovedeniye, v. 15, no. 2, 1963, 244 - 253

TEXT: The object of the present investigation was to study the relationship between the strength and fine structure of steel subjected to heat and mechanical treatment and to explain the part played by cementite and by its particle size in the formation of fine structure in the deformed α-phase. The experiments consisted of the following. Hot-rolled, 1.5 - 2.0 mm thick strip of steel У10 (U10) and У12 (U12) was (1) continuously patented by passing (at 2.7 m/min) through a furnace at 920 °C and then through a lead bath at 420 °C, or (2) annealed by maintaining for 20 min at 880 °C, furnace-cooling to 600 °C and then cooling in air to room temperature. The heat-treated strip was then cold-rolled to up to 93% reduction and cold-rolling was 270-290 and 300-320 kg/mm^2, respectively, the UTS of annealed and cold-rolled steel U10 being 180 kg/mm^2. The

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The fine structure ....

S/126/63/015/002/014/033
E193/E383

fine structure of steel after various degrees of cold deformation was studied with the aid of an electron microscope, X-ray diffraction measurements being used to determine the block dimensions and the magnitude of distortions of the second type. Conclusions: 1) the formation of sub-structure in ferrite during plastic deformation depends to a great extent on the presence of cementite and on the shape and size of crystals of this constituent. Small (0.1-0.2 μ) spacing between the platelets of the eutectoid, ensured by the patenting treatment, creates conditions favourable for a considerable reduction in the block dimensions of ferrite (100 - 150 Å) and cementite (30-50 Å) in cold-deformed steel. This is demonstrated in Fig. 10, where the UTS (σ_B, kg/mm^2), block dimensions ($D.10^6$ cm) and the magnitude of distortions of the second type ($\Delta a/a$) of steel U12 are plotted against the degree of deformation (bottom scale, %) and thickness of the strip (upper scale, mm), the circles and dots representing, respectively, the results obtained for patented and annealed specimens. 2) The high degree of fragmentation of the ferrite and cementite, high degree of misalignment of blocks in the interior of the grains, formation

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The fine structure ....

S/126/63/015/002/014/033
E193/E383

of a very dense network of obstacles to movement of dislocations (both present in the ferrite grains and in the form of grain boundaries between ferrite and cementite particles) constitute the main causes of high strength of patented and cold-worked steel strip. There are 11 figures and 1 table.

ASSOCIATION: Institut metallofiziki TsNIIChM (Institute of Metal Physics, TsNIIChM)

SUBMITTED: August 1, 1962

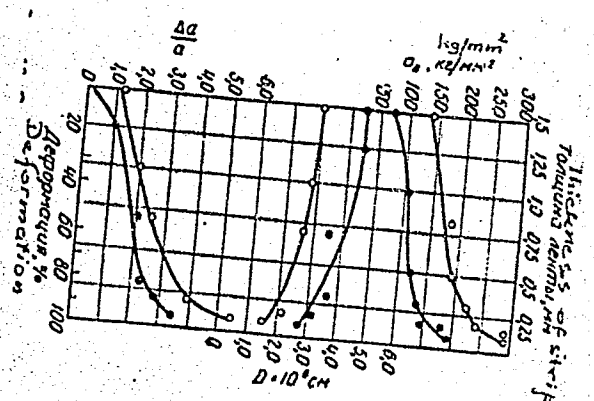

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Fig. 10

ACCESSION NR: AP4012426 S/0129/64/000/002/0002/0008

AUTHORS: Kardonskiy, V. M.; Kurdyumov, G. V.; Perkas, M. D.

TITLE: Influence of size and form of cementite particles on structure and properties of steel after deformation

SOURCE: Metalloved. i term. obrab. metallov, no. 2, 1964, 2-8, plus insert bet. pp. 24 & 25

TOPIC TAGS: steel properties, cementite particles plastic flow, lamellar cementite, cementite, cementite crystal

ABSTRACT: The purpose of the present work is to study the influence of cementite form (lamellar or globular) on the formation of the fine steel structure during plastic flow (including dislocation). Steels with a carbon content of 0.1, 0.4 and 1% were studied. After various degrees of deformation the steel structure was studied by X-ray and electron-microscope methods. After deformation, the shape of the cementite substantially influences the structure of steel and its mechanical properties. During plastic flow of steel with globular cementite, the fine structure of ferrite is similar to the

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ACCESSION NR: AP4012426

structure of deformed carbon-free iron, and their dislocation structures are similar. The shape, size, and internal structure of cementite crystals are only slightly changed in the process of plastic flow. It was determined that the work hardening of steel during deformation is not related to carbon content and corresponds to the increase in strength of carbon-free iron. Lamellar, unlike globular cementite, contributes to the derivation of a more dispersed ferrite substructure during deformation. Plastic flow of cementite crystals also occurs, resulting in the formation of a fine structure. Most of the eutectoid grains are crushed in the deformation process, with lamination disappearing. In those areas where lamination is maintained, there is a thinning of cementite crystals and a decrease in inter-lamellar spacing. The effect is more clearly expressed than the dispersed eutectoid before deformation. Increased eutectoid dispersion contributes to the derivation of a more developed fine structure of ferrite and cementite. Orig. art. has: 8 Figures, 1 Table.

ASSOCIATION: TsNIIChM

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ACCESSION NR: AP4012426

SUBMITTED: 00

SUB CODE: ML

DATE ACQ: 03Mar64

NR REF SOV: 005

ENCL: 00

OTHER: 003

Card 3/3

KARDONSKIY, V.M.; KURDYUMOV, G.V.; PERKAS, M.D.

Effect of size and shape of cementite particles on the structure and properties of steel following deformation. Metalloved. i term. obr. met. no.2:2-8 F'64 (MIRA 17:7)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii imeni Bardina.

L 20107-65 EPA(s)-2/EWT(m)/EPR/T/EWP(t)/EPA(bb)-2/EWP(b) Pad/Ps-4/Pt-10
IJP(c)/SSD/AFWL/ASD(m)-3 JD/HW

ACCESSION NR: AP4049105 S/0129/64/000/011/0015/0019

AUTHOR: Kardonskiy, V. M.; Perkas, M. D.

TITLE: Electron microscopic study of the aging of Fe-Ni-Al alloys

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 11, 1964, 15-19

TOPIC TAGS: nickel steel, aluminum containing alloy, martensitic steel, martensite aging, electron microscopy, martensite microstructure

ABSTRACT: The effects of heat in increasing martensite durability are well known, but the nature of the process is not. Direct electron microscopic examination was therefore performed with a UEMV-100 scope having an accelerating voltage of 100 kv on Fe-Ni-Al alloys containing 8.2% Ni and 1.6% Al during aging at 680-700C for periods of 1-5 hours. At this temperature, the α-γ transformation does not occur. X-ray analysis for the characteristic interference patterns of martensitic formations was also performed. The samples were quenched from 900C, and the γ-α transformation proceeded either by normal or martensitic means, depending on the use of rapid or slow quenching processes. Pictures were taken at all points on all experimental and control samples. Aging with the separation of (Ni, Fe) Al and Ni_3Al proceeds in both α-phase with martensitic structure and in ferrite with a nearly equilibrium structure. The composition of the original α-phase

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L 20107-65
ACCESSION NR: AP4049105

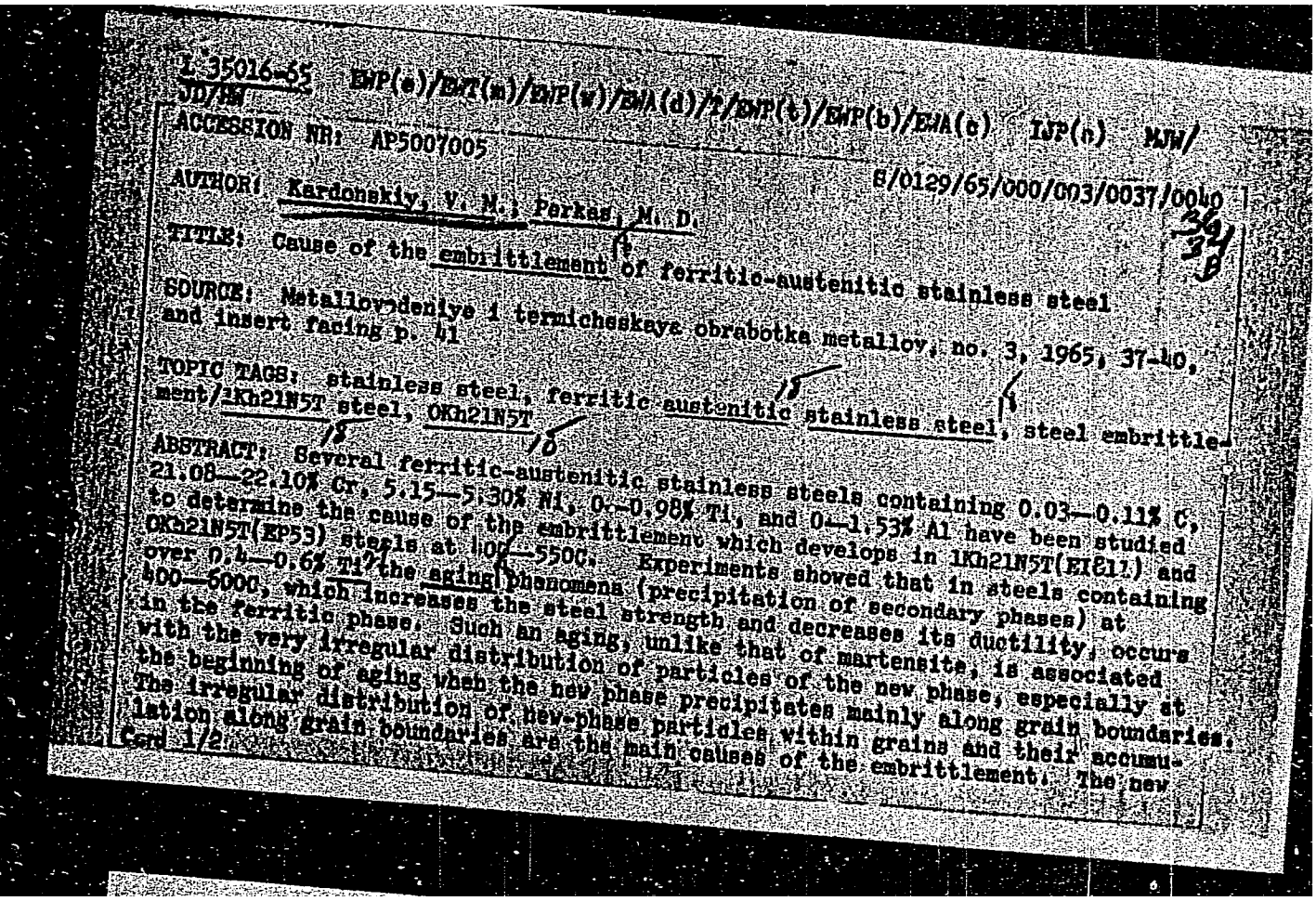
may affect durability after aging. Aging temperatures must be above 500C for the (Ni, Fe) Al aggregates to be large and numerous enough to be observed. Above 500C, separation of Ni_3Al is also increased, but without any noticeable effect on the durability of the κ-phase after aging. The increase in durability is connected with the initial stage of formation of areas with the (Ni, Fe)Al structure, cohering to the matrix, and, in fact, this seems responsible for the significant hardening during aging. Orig. art. has: 5 photomicrographs.

ASSOCIATION: TsNIIChermet

SUBMITTED 00 ENCL: 00 SUB CODE: MM

NO REF SOV: 005 OTHER: 004

Card 2/2



L 35016-65 EWP(e)/EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(b)/EWA(c) IJP(c) MJW/
JD/JW
ACCESSION NR: AP5007005 S/0129/65/000/003/0037/0040
AUTHOR: Kardonskiy, V. M.; Perkas, M. D.
TITLE: Cause of the embrittlement of ferritic-austenitic stainless steel
SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 3, 1965, 37-40, and insert facing p. 41
TOPIC TAGS: stainless steel, ferritic austenitic stainless steel, steel embrittlement/1Kh21N5T steel, OKh21N5T
ABSTRACT: Several ferritic-austenitic stainless steels containing 0.03—0.11% C, 21.08—22.10% Cr, 5.15—5.30% Ni, 0.—0.98% Ti, and 0—1.53% Al have been studied to determine the cause of the embrittlement which develops in 1Kh21N5T(EI811) and OKh21N5T(EP53) steels at 400—550C. Experiments showed that in steels containing over 0.4—0.6% Ti the aging phenomena (precipitation of secondary phases) at 400—600C, which increases the steel strength and decreases its ductility, occurs in the ferritic phase. Such an aging, unlike that of martensite, is associated with the very irregular distribution of particles of the new phase, especially at the beginning of aging when the new phase precipitates mainly along grain boundaries. The irregular distribution of new-phase particles within grains and their accumulation along grain boundaries are the main causes of the embrittlement. The new
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L 35016-65

ACCESSION NR: AP5007005

2

phase formed in the process of aging has a cubic structure, most probably of the CsCl type, and the same crystal lattice as the matrix with a parameter twice as large as that of the matrix (5.73 Å). It is expected that alloying with boron would promote a more regular distribution of the precipitated particles and reduce the embrittlement. Orig. art. has: 3 figures and 1 table. [ND]

ASSOCIATION: TsNIIChERMET

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NO REF SOV: 003 OTHER: 001 ATD PRESS: 3216

Card 2/2

L 40830-65 EWT(m)/EPA(s)-2/EWP(w)/EWA(d)/T/EWP(t)/EPA(bb)-2/EWP(z)/EWP(b)/EWA(c)
Pad/Pt-10 IJP(c) JD/HW
ACCESSION NR: AP5006337 S/0126/65/019/002/0293/0296

AUTHOR: Kardonskiy, V. M.; Perkas, M. D.

TITLE: Structural changes during maraging in Fe-Ni-Ti alloys

SOURCE: Fizika metallov i metallovedeniye, v. 19, no. 2, 1965, 293-296

TOPIC TAGS: maraging, titanium alloy, nickel alloy, hardening, phase transformation intermetalloid

ABSTRACT: The purpose of this study was to show what changes in the structure are associated with martensite hardening in the 350-600° C range in iron-nickel alloys containing titanium. Specimens in the form of thin films prepared by electrolysis were studied using a UEMV-100 electron microscope with accelerating voltage of 100 kv. An alloy containing 8% Ni and 1.5% Ti, in which direct transformation begins at 400° C and reverse $\alpha \rightarrow \gamma$ transformation takes place above 700° C, was selected for the study. The original hardness of the martensite (240 *HV* units) remains unchanged up to 350° C. Beginning at 400° C there is a sharp increase in hardness reaching a maximum (at 500° C) of 420 *HV* units. With a further increase in temperature the hardness is reduced and at 700° C reaches its original value. After

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cooling from 1000° C to room temperature the alloy structure consists of a large number of disoriented martensite crystals with a high dislocation density. In specimens heated for one hour at 400-500° C there are no noticeable changes in the martensite structure with the exception of a reduction in the dislocation density; however the hardness is increased at 500° C shows an increment of 180 HV units. After protracted heating (9 hours) at 500° C, segregations are observable in certain portions of the martensite in the form of thin platelets approximately 30 Å thick and up to 150 Å long. The boundaries between the particles and the matrix are strongly eroded, it must be presumed, because of the presence of elastic deformation fields; hence the true sizes of the segregations are probably much less than the figures given above. After 100 hours holding at 500° C, curved segregations 50-90 Å in size appear, some of which are uniformly distributed in the form of individual chains (platelets) up to 400 Å long. Further heating (600° C for 1 hour) leads to an increase in the size of the segregations, their form becomes more equiaxial, and the largest size is approximately 150 Å. In some cases the segregations are situated along dislocation lines. After heating to 670° C the segregations become almost spherical; their average diameter is 300 Å, and the average distance between them is increased. After heating above the temperature for initiation of reverse $\alpha \rightarrow \gamma$ transformation (730° C for 10 minutes) no particles

L 40830-65
ACCESSION NR: AP5006337

of the separated phase were observed. Evidently they are rapidly dissolved in the γ-phase. Electron microscope study of a specimen aged at 670° C and then at 600° C for 40 minutes actually indicated that there are fine particles (50 Å) formed at 600° C in addition to large particles measuring approximately 400 Å which are formed during high temperature aging. The Fe-Ni-Ti diagram shows that one can expect (iron angle of the diagram) the isolation of an intermetalloid of the $(Fe, Ni)_2Ti$ type in the 400-700° C range having a hexagonal lattice (for Fe_2Ti: a = 4.769, c = 7.745). Nickel with titanium in the system Fe-Ni-Ti forms two phases: Ni_3Ti (hexagonal lattice, a = 5.093 and c = 8.276) and NiTi (CsCl type, a = 2.99 - 3.013). From the results of measurement of the interplanar distances the conclusion can be made that the phase isolated by aging is an NiTi intermetalloid with CsCl type lattice with a parameter of approximately 3.0. The results of this experiment indicate that hardening of the Fe-Ni-Ti alloy during heating is associated with the initial stages of formation of an ordered NiTi phase. Orig. art. has: 6 figures and 1 table.

ASSOCIATION: Institut metallovedeniya i fiziki metallov, TSNIICHERMET, imeni I. P. Bardina (Institute of Metal Studies and Physics of Metals)

Card 3/4

L 22992-66 EWT(m)/EWA(d)/T/EWP(t) IJP(c) JD/HW

ACC NR: AP6012231 SOURCE CODE: UR/0129/66/000/004/0007/0010

AUTHOR: Kardonskiy, V. M.; Perkas, M. D.

ORG: TSNIICHERMET

TITLE: Aging of the Fe-Ni-Mn steel martensite

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 4, 1966, 7-10

TOPIC TAGS: alloy steel, maraging steel, nickel containing steel, manganese containing steel, steel aging, steel property, steel structure

ABSTRACT: The effect of aging on the structure and properties of steel containing 6% Ni + 5% Mn, 8% Ni + 4% Mn, 13% Ni + 2% Mn, 16% Ni, or 8% Mn has been investigated. The effect of aging was found to depend on aging temperature and nickel and manganese content. Steel with 16% Ni aged at 350—500C softened. Partial substitution of nickel by manganese increased hardness; the higher manganese content the greater the increase. The maximum hardness increase (~HV490 was observed in steel with 6% Ni and 5% Mn (see Fig. 1). The presence of nickel is essential for effective increase of steel hardness at aging. In steel containing 16% Ni and 2% Mn, the yield strength increased to 100 kg/mm^2 and the tensile strength to 110 kg/mm after aging at 350—450C both dropped to 52 and 90 kg/mm^2 after aging at 600C. Elongation, reduction of area, and notch toughness are affected only slightly by aging at 400—600C. In as-hardened steel containing 8% Ni and 4% Mn, the structure consists of martensite crystals with

Card 1/3

UDC: 621/785.789:669.15-194:669.24'74

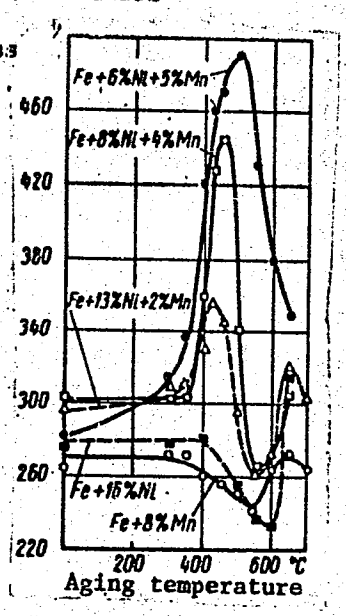

Fig. 1. Hardness versus aging temperature for Ni-Mn steels

a high dislocation density; it changes little with aging at temperatures up to 400C. Segregations 40—50 Å in size were observed in specimens aged at 450C, at which temperature the maximum strengthening of steel was reached. Aging at 510C increased the

L 22992-66

ACC NR: AP6012231

particle size of the γ-phase and reduced hardness; aging at 550C decreased the dislocation density in the α- phase. The size of particles of the γ-phase and the intervals between them increased, and the steel had a minimum strength. The reverse transformation from γ to α occurred at temperatures over 550C. Orig. art. has: 3 figures. [AZ]

SUB CODE: 11, 13/ SUBM DATE: none/ ORIG REF: 005/ OTH REF: 004/ ATD PRESS: 4238

Card 3/3

KARDONSKIY, V.M.; KUSHNIR, I.P.

X-ray diffraction microscopy; survey. Zav. lab. 27 no.6:705-711 '61. (MIRA 14:6)

(X rays--Diffraction) (X-ray microscope)

KARDOPOL'TSEVA, O.I.; MOREVA, V.A.; PLOTNIKOVA, M.I.; SALTYKOV, O.G.; UMANETS, V.N.

New data on "water-shed pebbles" in the Markha-Tyung interfluve. Trudy VSEGEI 66:117-139 '61. (MIRA 15:4)
(Markha Valley--Alluvium) (Tyung Valley--Alluvium)

PLOTNIKOVA, M.I.; KARDOPOL'TSEVA, O.I.; SALTYKOV, O.G.; UMANETS, V.N.

Paleogeography of the Markha and Tyung interfluve in the Cenozoic as related to the history of the formation of diamond placers (Eastern Siberia). Trudy VSEGEI 90:81-96 '63. (MIRA 17:5)

PLOTNIKOVA, M.I.; UMANETS, V.N.; KARDOPOL'TSEVA, O.I.

Methods for mapping of high terraces in the middle Markha Basin. Inform.sbor. VSEGEI no.52:61-68 '62. (MIRA 15:11)
(Markha Valley--Terraces (Geology)--Maps)

KARDOS, A.

TECHNOLOGY

MERES ES AUTOMATIKA. (Merestechnikai es Automatizalasi Tudomanyos Egyesulet) Budapest.

KARDOS, A. Measuring device of cutting force operating by tensiometer band. p. 278.

Vol. 6, no. 9, 1958.

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KARDOS, A.

Determination of the optimum cutting edge. p. 467

GEP (Gepipari Tudomanyos Egyesulet) Budapest, Hungary
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Uncl.

BADICS, Arpad, dr., a miszaki tudomanyok kandidatusa

Tool edge endurance test during the process of turning aluminum alloys. Gep 16 no. 3:91-95 Mr '64.

1. Chair of Machine Building Technology, Budapest Technical University. (Head of the Chair:University Professor Dr.Ferenc Lettner,editor-in-chief,"Gep").

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"Handbook for mechanical and electrical engineers" by Mattanyus. Reviewed by Arpad Kardos. Gep 16 no.9:360-361 S'64

ACC NR: AT6035012

SOURCE CODE: HU/2504/66/054/01-/0073/0085

KARDOS, A., of the Department of Machine Production Technology at the Technical University [original-language version not given] in Budapest.

Relation Between Cutting Factors and Cutting Force in the Turning of Aluminum Alloys"

Budapest, Acta Technica Academiae Scientiarum Hungaricae, Vol 54, No 1-2, 8 Jun 1966, pp 73-85.

Abstract: [English article]Experiments carried out by turning an aluminum alloy containing 2.8% copper and having a hardness of HB = 61 kp./sq.mm. and characterized by a tensile stress of 24 kp./sq. mm., were described. The influences exerted by variations in feed, depth of cut, and cutting rate on the cutting force were investigated. The relations between the specific cutting force, chip thickness, and chip size were analyzed. The changes in cutting force as a function of the cutting rate were discussed in terms of changes in the value of the chip-deformation coefficient. Orig. art. has: 11 figures, 9 formulas and 2 tables. [JPRS: 36,867]

TOPIC TAGS: aluminum metallurgy, hardness, tensile strength

SUB CODE: 11,13,20 / SUBM DATE: 04 Nov 64 / ORIG REF: 004 / OTH REF: 009
SOV REF: 001

Card 1/1

KARDOS, A., candidate of technical sciences

Relation of cutting temperature to tool life in turning of aluminum alloys. Acta techn Hung 34 no.1/2:71-82 '61.

1. Department of Machine Production Technology, Technical University, Budapest.

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Design and construction of structures. Magy ep ipar 13 no. 3: 176-179 '64.

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Cutting force measuring instrument operating on pneumatic principle. Gep 15 no.7:261-265 Jl '63.

1. Budapesti Muszaki Egyetem Gepgyartastechnologiai Tanszek. Tanszekvezeto: Dr. Lettner Ferenc egyetemi tanar (for Kardos).
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Cutting test of molybdenum-alloyed high-speed steel shank cutters. Gep 15 no.12:483-488 D '63.

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Effect of the setting angle of the secondary edge in cutting an aluminum alloy. Gep 16 no.1:23-30 Ja '62.

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Exhibition of the machine tools of the German Democratic Republic at the 1961 Brno Fair. Gep 14 no.5:194-197 My '62.

1. Budapesti Muszaki Egyetem, Gepgyartastechnologiai Tanszek adjunktusa.

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"Work in a chemical laboratory" by Jaroslav Schneider, Josef Dvorak. Reviewed by A.M. Kardos. Chem listy 58 no.1:43-44 Ja'64.

KARDOS, Nikola, mr; KARDOS, Bozidar, inz.

Strength of paper for large-size bags as a new indicator of quality. Kem ind 13 no.3 184-187 '64.

1. "Natron" Maglaj.

KARDOS, E.

82. The drying of green vegetables by partial dehydration — G. Török, E. Kardos. (*Élelmezési Ipar* - Vol. 9, 1955, No. 2, pp. 37-40, 15 figs.)

When drying green vegetables and fruit their water content must be reduced to such an extent that it prevents the development of microorganisms on the dried products. However the water absorbency of the dried product must be preserved which is only feasible if the first hydrate shell is not removed. The authors have succeeded in fulfilling these two contradictory demands by precooling the vegetables etc. in salt water prior to drying. The products treated in this manner may be preserved with a higher water content (approx. 20%), retain their hydrate shells uninjured and possess a far better swelling ability. Other advantages of salt drying are shortened drying period and thereby economies in coal. The drawback is that it requires 10 to 15% more packaging material and storage space.

(1)

H-28

COUNTRY : Hungary
CATEGORY :

ABS. JOUR. : RZKhim., No. 5 1960, No. 19803

AUTHOR : I. Spanyar, P.; II. Gyoenoes; III. Kardos, E.
INST. : Not given
TITLE : The Effect of Heating on the Storage Stability, Food Value, and Organoleptic Properties of Food * Products. I. Effect of Heating on the Composition

ORIG. PUB. : Elem Ipar, 13, No 7, 211-221 (1959)

ABSTRACT : No abstract.

* of Food Products and Their Biological Value. II. Sterilization. III. Drying. IV. Cooking.

CARD: 1/1 369

E-26

E-2

COUNTRY : Hungary
CATEGORY :

ABS. JOUR. : RZKhim., No. 1959, No. 86213

AUTHOR : Szekeres, L.; Kardos, E.
INST. :
TITLE : Iodometry. VI. Determination of Iodide in the Presence of Bromide and Chloride.

ORIG. PUB. : Magyar kem. lapja, 1958, 13, No 10-12, 447

ABSTRACT : A method has been worked out, according to which I^- is oxidized to IO_3^- with hypobromite (obtained by adding a solution of Br_2 in 0.1 N KBr containing 3-5 g $NaHCO_3$), excess hypobromite is reduced with ethanol (5-15 ml) at water-bath temperature; after cooling acidified with HCl-solution, added KI, and liberated I_2 titrated with 0.02 or 0.1 N solution of $Na_2S_2O_3$. Communication V see RZhKhim, 1959, No 19, 67702. -- I. Krishtofori.

CARD:

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Determination of iodate and periodate together. L. Szekeres, M. Rady, and E. Kardos (Landwirtschaftlichen Univ., Budapest). *Z. anal. Chem.* 162, 430–1(1958).—In the previously described method (*C.A.* 52, 18538i), the EtOH can be replaced with $(NH_2)_2CO$. K. G. Stone

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1. Konzerv - es Paprikaipari Kutatointezet.

KARDOS, Erno, Dr.

Manufacturing fruit juices and soft beverages in Hungary and its current tasks. Elelm ipar 14 no.2:44-51 F '60.

1. Konzerv- es Paprikaipari Kutato Intezet.

KARDOS, Erno; KISZEL, Jozsefne; GELLERT, Katalin

Some questions relating to the production technology of condensed paprika puree. Konzerv paprika no.4:112-116 Jl-Ag '62.

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HUNGARY

SIKLER, Janos, Dr, KARLOS, Eva, Dr, MIRISZLAI, Erno, Dr, SCHULER, Dezso, Dr; Medical University of Budapest, II. Pediatric Clinic (director: PETENYI, Geza, Dr) (Budapesti Orvostudomanyi Egyetem, II. Gyermekklinika).

"Investigations in Three Cases of the Pendrel Syndrome."

Budapest, Orvosi Hetilap, Vol 107, No 45, 6 Nov 66, pages 2120-2122.

Abstract: [Authors' Hungarian summary] Three cases of Pendrel's syndrome are presented in one of which a decreased intensity of the syndrome was observed. Characteristic deviations were found in the labelled iodine storage curves measured over the thyroid and after KI loading. The otoneurological aberration was demonstrated objectively by audiometric and nystagmographic examinations. There were no chromosomal aberrations in the cases observed. 2 Hungarian, 8 Western references.

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Simultaneous presence of adenoma of the islets of Langerhans and peptic ulcer: Zollinger-Ellison syndrome. Orv. hetil. 102 no.53:2520-2524 D '61.

1. Orvostovabbkepzo Intezet es a Budapesti Orvostudomanyi Egyetem, II Gyermekklinika.

(ISLET CELL TUMOR compl) (PEPTIC ULCER compl)

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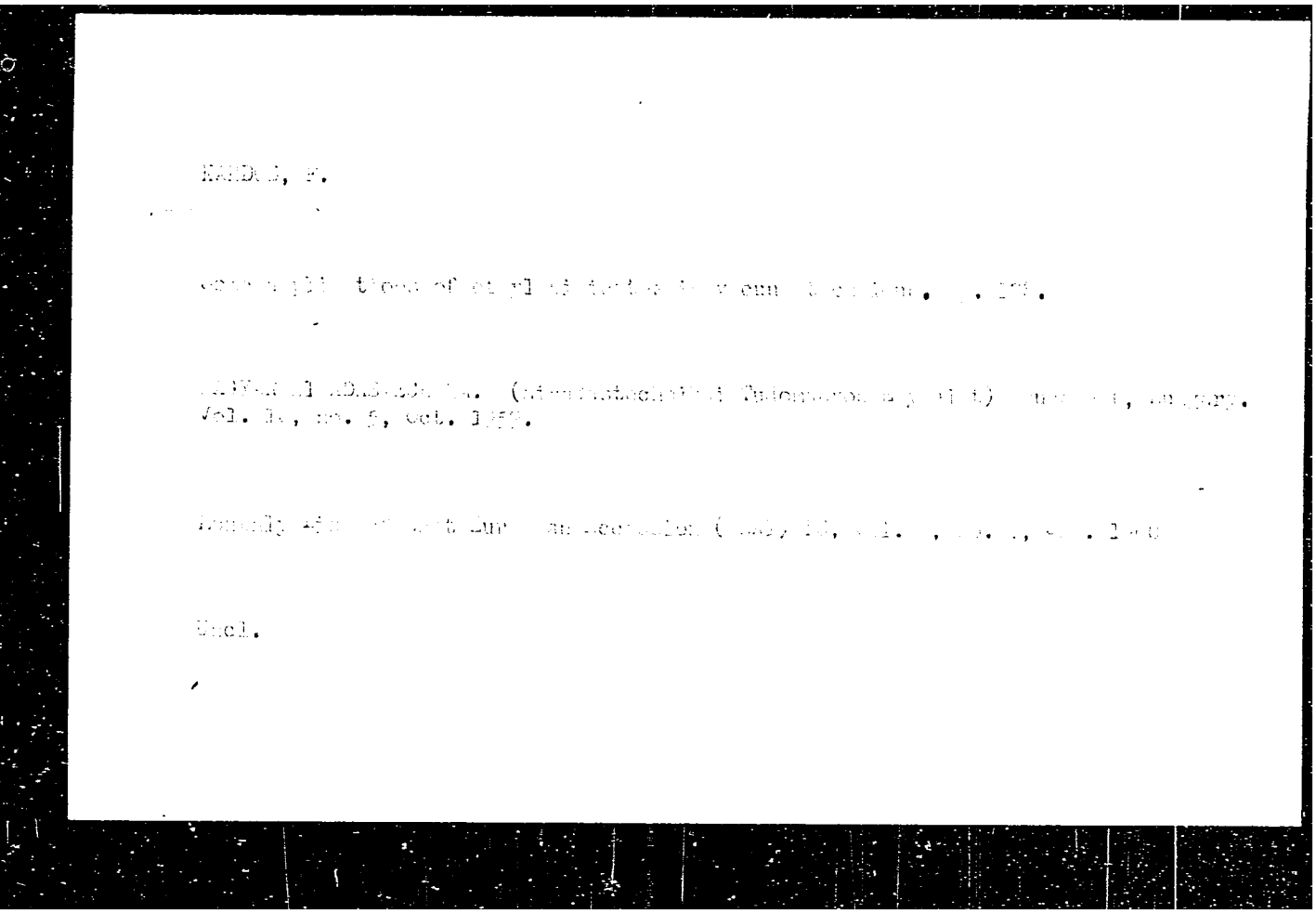

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1. Of the Gynecological Clinic of Debrecen University.

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Experimental hemolytic disease in newborn dog. Kiserletes orvostud. 6 no.6:515-521 Nov 54.

1. Debreceni Orvostudomanyi Egyetem Szuleszeti es Nogyogyaszati Klinikaja.

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(WOUNDS AND INJURIES, experimental,
healing, eff. ovariectomy)
(OVARIES, effect of excision,
on wds. healing)

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(AMNIOTIC FLUID
premature discharge through rupt. of amnion, diag. by fluid crystallization test.)
(PREGNANCY, complications
premature rupt. of amnion, diag. by amniotic fluid crystallization test.)
(FETAL MEMBRANES
premature rupt., diag., amniotic fluid crystallization test.)
(AMNION
same.)

KARDOS, Ferenc, dr.

Pathogenic role of pregnancy and delivery in female genital tuberculosis. Magy. noorv. lap. 19 no.5:295-300 Sept 56.

1. Az Allami Fodor, Jozsef Tb. Gyogyintezet Budapest. kozl. Igaz. -foorvos: Risko, Tibor, dr.).

(TUBERCULOSIS, FEMALE GENITAL, etiol. & pathogen.
pregn. & delivery in non-genital tuberc. (Hun))
(PREGNANCY, in various dis.
tuberc., non-genital, pathogenic role in genital tuberc. (Hun))
(DELIVERY, in various dis.
same)